WPI Acc no: 1999-010835/199902
XRPX Acc No: N1999-008079

Service quality estimation method for channels of digital transmission system - determining service quality on transmission channels from variance of soft decision output signals provided by turbo-decoder at receiver side

Patent Assignee: SIEMENS AG (SIEI)
Inventor: BERENS F; BERENS T; DOETSCH M; JUNG P; PLECHINGER J

Patent Family (11 patents, 33 & countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
DE 19736653	C1	19981210	DE 19736653	A	19970822	199902	B
WO 1999011013	A1	19990304	WO 1998DE2172	A	19980729	199916	E
AU 199892534	A	19990316	AU 199892534	A	19980729	199930	E
EP 1005735	A1	20000607	EP 1998945070	A	19980729	200032	E
			WO 1998DE2172	A	19980729		
BR 199811918	A	20000815	BR 199811918	A	19980729	200045	E
			WO 1998DE2172	A	19980729		
CN 1268268	A	20000927	CN 1998808414	A	19980729	200067	E
KR 2001023205	A	20010326	KR 2000701834	A	20000222	200161	E
JP 2001514459	W	20010911	WO 1998DE2172	A	19980729	200167	E
			JP 2000508160	A	19980729		
RU 2202153	C2	20030410	WO 1998DE2172	A	19980729	200338	E
			RU 2000107150	A	19980729		
US 6629286	B1	20030930	WO 1998DE2172	A	19980729	200367	E
			US 2000510639	A	20000222		
EP 1005735	B1	20050518	EP 1998945070	A	19980729	200538	E
			WO 1998DE2172	A	19980729		

Priority Applications (no., kind, date): DE 19736653 A 19970822

Patent Details

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DE 19736653	C1	DE	11	11		
WO 1999011013	A1	DE				
National Designated States,Original	AU BR CA CN HU ID IL JP KR MX NO PL RU UA US VN					
Regional Designated States,Original	AT BE CH CY DE DK EA ES FI FR GB GR IE IT LU MC NL PT SE					
AU 199892534	A	EN			Based on OPI patent	WO 1999011013
EP 1005735	A1	DE			PCT Application	WO 1998DE2172

					Based on OPI patent	WO 1999011013
Regional Designated States,Original	DE FI FR GB SE					
BR 199811918	A	PT			PCT Application	WO 1998DE2172
					Based on OPI patent	WO 1999011013
JP 2001514459	W	JA	33		PCT Application	WO 1998DE2172
					Based on OPI patent	WO 1999011013
RU 2202153	C2	RU			PCT Application	WO 1998DE2172
					Based on OPI patent	WO 1999011013
US 6629286	B1	EN			Continuation of application	WO 1998DE2172
EP 1005735	B1	DE			PCT Application	WO 1998DE2172
					Based on OPI patent	WO 1999011013
Regional Designated States,Original	FI FR GB SE					

Alerting Abstract DE C1

The method involves estimating the service quality on the transmission channels in a digital transmission system, in which a turbo-encoding is performed for a channel encoding in a turbo-encoder at the transmitter side. A turbo-decoding, with soft-decision output signals, is performed in a turbo-decoder at the receiver side.

The service quality is determined from the variance of the soft-decision output signals at the receiver side, preferably through a soft-input/soft-output symbol or sequence estimator, by using a detected bit error rate.

USE - In mobile and base station of mobile communications network.

ADVANTAGE - Enables estimation of service quality without additional effort.

ADVANTAGE - .

Title Terms /Index Terms/Additional Words: SERVICE; QUALITY; ESTIMATE; METHOD; CHANNEL; DIGITAL; TRANSMISSION; SYSTEM; DETERMINE; VARIANCE; SOFT; DECIDE; OUTPUT; SIGNAL; TURBO; DECODE; RECEIVE; SIDE

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
H04L-001/20			Main		"Version 7"
H03M-0013/13	A	I	F	R	20060101
H03M-0013/29	A	I		R	20060101
H03M-0013/35	A	I		R	20060101
H03M-0013/41	A	I	L	R	20060101
H03M-0013/45	A	I	L	R	20060101
H04L-0001/00	A	I		R	20060101
H04L-0001/20	A	I		R	20060101
H03M-0013/00	C	I		R	20060101
H04L-0001/00	C	I		R	20060101
H04L-0001/20	C	I		R	20060101

ECLA: H03M-013/29T, H03M-013/29T3, H03M-013/29T5, H03M-013/35, H04L-001/00B5E5, H04L-001/00B5T, H04L-001/00B7K3, H04L-001/00B7R1, H04L-001/20
ICO: T04L-001:00B7K3, T04L-001:00B7P
US Classification, Issued: 714755, 714786

File Segment: EPI;
DWPI Class: U21; W01; W02
Manual Codes (EPI/S-X): U21-A06; W01-A01B; W01-A01C; W01-A02; W01-A06A; W01-B05A1A; W01-C01D3; W02-C03C1B; W02-C03C1C; W02-G03J5

Original Publication Data by Authority

Australia

Publication No. AU 199892534 A (Update 199930 E)
Publication Date: 19990316
Assignee: SIEMENS AG; DE (SIEI)
Language: EN
Application: AU 199892534 A 19980729 (Local application)
Priority: DE 19736653 A 19970822
Related Publication: WO 1999011013 A (Based on OPI patent)
Original IPC: H04L-1/20(A)
Current IPC: H03M-13/00(R,A,I,M,EP,20060101,20051008,C) H03M-13/13(R,I,M,JP,20060101,20051220,A,F) H03M-13/29(R,I,M,EP,20060101,20051008,A) H03M-13/35(R,I,M,EP,20060101,20060722,A) H03M-13/41(R,I,M,JP,20060101,20051220,A,L) H03M-13/45(R,I,M,JP,20060101,20051220,A,L) H04L-1/00(R,I,M,EP,20060101,20051008,A) H04L-1/00(R,I,M,EP,20060101,20051008,C) H04L-1/20(R,I,M,EP,20060101,20051008,A) H04L-1/20(R,I,M,EP,20060101,20051008,C)
Current ECLA class: H03M-13/29T H03M-13/29T3 H03M-13/29T5 H03M-13/35 H04L-1/00B5E5 H04L-1/00B7K3 H04L-1/00B7R1 H04L-1/20

Brazil

Publication No. BR 199811918 A (Update 200045 E)
Publication Date: 20000815
Assignee: SIEMENS AG (SIEI)
Inventor: DOETSCH M
PLECHINGER J
JUNG P
BERENS T
Language: PT
Application: BR 199811918 A 19980729 (Local application)

WO 1998DE2172 A 19980729 (PCT Application)
Priority: DE 19736653 A 19970822
Related Publication: WO 1999011013 A (Based on OPI patent)
Original IPC: H04L-1/20(A)
Current IPC: H03M-13/00(R,A,I,M,EP,20060101,20051008,C) H03M-13/13(R,I,M,JP,20060101,20051220,A,F) H03M-13/29(R,I,M,EP,20060101,20051008,A) H03M-13/35(R,I,M,EP,20060101,20060722,A) H03M-13/41(R,I,M,JP,20060101,20051220,A,L) H03M-13/45(R,I,M,JP,20060101,20051220,A,L) H04L-1/00(R,I,M,EP,20060101,20051008,A) H04L-1/00(R,I,M,EP,20060101,20051008,C) H04L-1/20(R,I,M,EP,20060101,20051008,A) H04L-1/20(R,I,M,EP,20060101,20051008,C)
Current ECLA class: H03M-13/29T H03M-13/29T3 H03M-13/29T5 H03M-13/35 H04L-1/00B5E5 H04L-1/00B7K3 H04L-1/00B7R1 H04L-1/20

China

Publication No. CN 1268268 A (Update 200067 E)
Publication Date: 20000927
Assignee: SIEMENS AG; DE (SIEI)
Language: ZH
Application: CN 1998808414 A 19980729 (Local application)
Priority: DE 19736653 A 19970822
Original IPC: H04L-1/20(A)
Current IPC: H03M-13/00(R,A,I,M,EP,20060101,20051008,C) H03M-13/13(R,I,M,JP,20060101,20051220,A,F) H03M-13/29(R,I,M,EP,20060101,20051008,A) H03M-13/35(R,I,M,EP,20060101,20060722,A) H03M-13/41(R,I,M,JP,20060101,20051220,A,L) H03M-13/45(R,I,M,JP,20060101,20051220,A,L) H04L-1/00(R,I,M,EP,20060101,20051008,A) H04L-1/00(R,I,M,EP,20060101,20051008,C) H04L-1/20(R,I,M,EP,20060101,20051008,A) H04L-1/20(R,I,M,EP,20060101,20051008,C)
Current ECLA class: H03M-13/29T H03M-13/29T3 H03M-13/29T5 H03M-13/35 H04L-1/00B5E5 H04L-1/00B7K3 H04L-1/00B7R1 H04L-1/20

Germany

Publication No. DE 19736653 C1 (Update 199902 B)
Publication Date: 19981210
Verfahren und Einrichtung zur Abschaetzung der Dienstqualitaet auf Uebertragungskanaelen in einem digitalen Uebertragungssystem
Assignee: Siemens AG, 80333 Muenchen, DE (SIEI)
Inventor: Doetsch, Markus, Dipl.-Ing., 56072 Koblenz, DE
Plechinger, Joerg, Dipl.-Ing., 67663 Kaiserslautern, DE
Jung, Peter, Dr.-Ing. habil, 67697 Otterberg, DE
Language: DE (11 pages, 11 drawings)
Application: DE 19736653 A 19970822 (Local application)
Original IPC: H04L-1/24(A) H03M-13/00(B) H04L-12/26(B)
Current IPC: H03M-13/00(R,A,I,M,EP,20060101,20051008,C) H03M-13/13(R,I,M,JP,20060101,20051220,A,F) H03M-13/29(R,I,M,EP,20060101,20051008,A) H03M-

13/35(R,I,M,EP,20060101,20060722,A) H03M-13/41(R,I,M,JP,20060101,20051220,A,L) H03M-13/45(R,I,M,JP,20060101,20051220,A,L) H04L-1/00(R,I,M,EP,20060101,20051008,A) H04L-1/00(R,I,M,EP,20060101,20051008,C) H04L-1/20(R,I,M,EP,20060101,20051008,A) H04L-1/20(R,I,M,EP,20060101,20051008,C)
Current ECLA class: H03M-13/29T H03M-13/29T3 H03M-13/29T5 H03M-13/35 H04L-1/00B5E5 H04L-1/00B7K3 H04L-1/00B7R1 H04L-1/20
Claim:

- 1. Verfahren zur Abschatzung der Dienstqualitat auf Ubertragungskanalen in einem digitalen Ubertragungssystem, bei dem zur Kanalcodierung senderseitig in einem Turbo-Codierer eine Turbo-Codierung und empfangerseitig in einem Turbo-Decodierer eine Turbo-Decodierung mit Soft-Decision-Ausgangssignalen durchgefuhrt wird, **dadurch gekennzeichnet**, dass die Dienstqualitat aus den Varianzen der Soft-Decision-Ausgangssignale an dem Turbo-Decodierer bestimmt wird.

EPO

Publication No. EP 1005735 A1 (Update 200032 E)
Publication Date: 20000607
VERFAHREN UND EINRICHTUNG ZUR ABSCHATZUNG DER DIENSTQUALITAT AUF UBERTRAGUNGSKANALEN IN EINEM DIGITALEN UBERTRAGUNGSSYSTEM
METHOD AND DEVICE FOR ASSESSING THE SERVICE QUALITY OF TRANSMISSION CHANNELS IN A DIGITAL TRANSMISSION SYSTEM
PROCEDE ET DISPOSITIF POUR L'EVALUATION DE LA QUALITE DE SERVICE SUR DES CANAUX DE TRANSMISSION DANS UN SYSTEME DE TRANSMISSION NUMERIQUE
Assignee: SIEMENS AKTIENGESELLSCHAFT, Wittelsbacherplatz 2, 80333 Munchen, DE (SIEI)
Inventor: DOETSCH, Markus, Sendnicher Weg 62, D-56072 Koblenz, DE
PLECHINGER, Jorg, Westermuhlstrasse 16, D-80469 Munchen, DE
JUNG, Peter, Im Rabental 28, D-67697 Otterberg, DE
BERENS, Friedbert, Keltenweg 67, D-67663 Kaiserslautern, DE
Language: DE
Application: EP 1998945070 A 19980729 (Local application)
WO 1998DE2172 A 19980729 (PCT Application)
Priority: DE 19736653 A 19970822
Related Publication: WO 1999011013 A (Based on OPI patent)
Designated States: (Regional Original) DE FI FR GB SE
Original IPC: H04L-1/20(A)
Current IPC: H03M-13/00(R,A,I,M,EP,20060101,20051008,C) H03M-13/13(R,I,M,JP,20060101,20051220,A,F) H03M-13/29(R,I,M,EP,20060101,20051008,A) H03M-13/35(R,I,M,EP,20060101,20060722,A) H03M-13/41(R,I,M,JP,20060101,20051220,A,L) H03M-13/45(R,I,M,JP,20060101,20051220,A,L) H04L-1/00(R,I,M,EP,20060101,20051008,A) H04L-1/00(R,I,M,EP,20060101,20051008,C) H04L-1/20(R,I,M,EP,20060101,20051008,A) H04L-1/20(R,I,M,EP,20060101,20051008,C)
Current ECLA class: H03M-13/29T H03M-13/29T3 H03M-13/29T5 H03M-13/35 H04L-1/00B5E5 H04L-1/00B7K3 H04L-1/00B7R1 H04L-1/20

Original Abstract: The invention relates to a method and a device for assessing the service quality of transmission channels in a digital transmission system, wherein turbo-coding for channel coding is carried out in a turbo-coder on the sender side and turbo decoding is performed using a turbo-decoder with soft decision output signals on the receiver side. Service quality is determined on the basis of variances in the soft decision output signals in the turbo-decoder. When a MAP symbol evaluator is used in the receiver side, the service quality is determined on the basis of the variances $sigma^2_{LLR}$ of the soft decision output signals of the turbo-decoder. The bit error rate is calculated on the basis of the variances $sigma^2_{LLR}$ to measure service quality. An RCPTC is used as turbo-code in the method and in the device.

Publication No. EP 1005735 B1 (Update 200538 E)
Publication Date: 20050518
VERFAHREN UND EINRICHTUNG ZUR ABSCHATZUNG DER DIENSTQUALITAT AUF UBERTRAGUNGSKANALEN IN EINEM DIGITALEN UBERTRAGUNGSSYSTEM
METHOD AND DEVICE FOR ASSESSING THE SERVICE QUALITY OF TRANSMISSION CHANNELS IN A DIGITAL TRANSMISSION SYSTEM
PROCEDE ET DISPOSITIF POUR L'EVALUATION DE LA QUALITE DE SERVICE SUR DES CANAUX DE TRANSMISSION DANS UN SYSTEME DE TRANSMISSION NUMERIQUE
Assignee: SIEMENS AKTIENGESELLSCHAFT, Wittelsbacherplatz 2, 80333 Munchen, DE (SIEI)
Inventor: DOETSCH, Markus, Sendnicher Weg 62, D-56072 Koblenz, DE
PLECHINGER, Jorg, Westermuhlstrasse 16, D-80469 Munchen, DE
JUNG, Peter, Im Rabental 28, D-67697 Otterberg, DE
BERENS, Friedbert, Keltenweg 67, D-67663 Kaiserslautern, DE
Language: DE
Application: EP 1998945070 A 19980729 (Local application)
WO 1998DE2172 A 19980729 (PCT Application)
Priority: DE 19736653 A 19970822
Related Publication: WO 1999011013 A (Based on OPI patent)
Designated States: (Regional Original) FI FR GB SE
Original IPC: H04L-1/20(A)
Current IPC: H03M-13/00(R,A,I,M,EP,20060101,20051008,C) H03M-13/13(R,I,M,JP,20060101,20051220,A,F) H03M-13/29(R,I,M,EP,20060101,20051008,A) H03M-13/35(R,I,M,EP,20060101,20060722,A) H03M-13/41(R,I,M,JP,20060101,20051220,A,L) H03M-13/45(R,I,M,JP,20060101,20051220,A,L) H04L-1/00(R,I,M,EP,20060101,20051008,A) H04L-1/00(R,I,M,EP,20060101,20051008,C) H04L-1/20(R,I,M,EP,20060101,20051008,A) H04L-1/20(R,I,M,EP,20060101,20051008,C)
Current ECLA class: H03M-13/29T H03M-13/29T3 H03M-13/29T5 H03M-13/35 H04L-1/00B5E5 H04L-1/00B7K3 H04L-1/00B7R1 H04L-1/20
Claim:

1. Verfahren zur Abschatzung der Dienstqualitat auf Ubertragungskanalen in einem digitalen Ubertragungssystem, bei dem zur Kanalcodierung senderseitig in einem Turbo-Codierer eine Turbo-Codierung und empfangerseitig in einem Turbo-Decodierer eine Turbo-Decodierung mit Soft-Decision-Ausgangssignalen durchgefuhrt wird, **dadurch gekennzeichnet, dass** die Dienstqualitat aus den Momentanwerten der Varianzen der Soft-Decision-Ausgangssignale an dem Turbo-Decodierer bestimmt wird.

1. Method for estimating the quality of service on transmission channels in a digital transmission system, in which for channel coding, turbo coding is undertaken with a turbo coder on the sender side and turbo decoding is undertaken in a turbo decoder on the receiver side with soft-decision output signals,
characterized in that the quality of service is determined form the instantaneous values of the variances of the soft-decision output signals at the turbo decoder.

1. Procede pour l'evaluation de la qualite de service sur des canaux de transmission dans un systeme de transmission numerique, avec lequel on effectue un turbo-codage pour le codage de canal cote emetteur dans un turbo-codeur et un turbo-decodage cote recepteur dans un turbo-decodeur avec des signaux de sortie Soft-Decision, **caracterise en ce que** la qualite de service est determinee a partir des valeurs instantanees des variances des signaux de sortie Soft-Decision sur le turbo-decodeur.

Japan

Publication No. JP 2001514459 W (Update 200167 E)
Publication Date: 20010911
Language: JA (33 pages)
Application: WO 1998DE2172 A 19980729 (PCT Application)
JP 2000508160 A 19980729 (Local application)
Priority: DE 19736653 A 19970822
Related Publication: WO 1999011013 A (Based on OPI patent)
Original IPC: H04L-1/20(A) H03M-13/13(B) H03M-13/29(B) H03M-13/41(B) H03M-13/45(B)
Current IPC: H04L-1/20(A) H03M-13/13(B) H03M-13/29(B) H03M-13/41(B) H03M-13/45(B)
Current ECLA class: H03M-13/29T H03M-13/29T3 H03M-13/29T5 H03M-13/35 H04L-1/00B5E5 H04L-1/00B7K3 H04L-1/00B7R1 H04L-1/20

Korea

Publication No. KR 2001023205 A (Update 200161 E)
Publication Date: 20010326
Assignee: SIEMENS AG (SIEI)
Language: KO
Application: KR 2000701834 A 20000222 (Local application)
Priority: DE 19736653 A 19970822
Original IPC: H04L-1/20(A)
Current IPC: H04L-1/20(A)

Russia

Publication No. RU 2202153 C2 (Update 200338 E)
Publication Date: 20030410
Assignee: SIEMENS AG; DE (SIEI)
Language: RU
Application: WO 1998DE2172 A 19980729 (PCT Application)
RU 2000107150 A 19980729 (Local application)
Priority: DE 19736653 A 19970822
Related Publication: WO 1999011013 A (Based on OPI patent)
Original IPC: H04L-1/20(A)
Current IPC: H03M-13/00(R,A,I,M,EP,20060101,20051008,C) H03M-13/13(R,I,M,JP,20060101,20051220,A,F) H03M-13/29(R,I,M,EP,20060101,20051008,A) H03M-13/35(R,I,M,EP,20060101,20060722,A) H03M-13/41(R,I,M,JP,20060101,20051220,A,L) H03M-13/45(R,I,M,JP,20060101,20051220,A,L) H04L-1/00(R,I,M,EP,20060101,20051008,A) H04L-1/00(R,I,M,EP,20060101,20051008,C) H04L-1/20(R,I,M,EP,20060101,20051008,A) H04L-1/20(R,I,M,EP,20060101,20051008,C)
Current ECLA class: H03M-13/29T H03M-13/29T3 H03M-13/29T5 H03M-13/35 H04L-1/00B5E5 H04L-1/00B7K3 H04L-1/00B7R1 H04L-1/20

United States

Publication No. US 6629286 B1 (Update 200367 E)
Publication Date: 20030930
Method and device for assessing the quality of service on transmission channels in a digital transmission system
Assignee: Siemens Aktiengesellschaft, Munich, DE (SIEI)
Inventor: Berens, Friedbert, Geneva, CH
Doetsch, Markus, Munchen, DE
Plechinger, Jorg, Munchen, DE
Jung, Peter, Otterberg, DE
Agent: Greenberg, Laurence A., US
Stemer, Werner H., US
Mayback, Gregory L., US
Language: EN
Application: WO 1998DE2172 A 19980729 (Continuation of application)
US 2000510639 A 20000222 (Local application)
Priority: DE 19736653 A 19970822
Original IPC: H03M-13/29(A) H04L-1/00(B)
Current IPC: H03M-13/00(R,A,I,M,EP,20060101,20051008,C) H03M-13/13(R,I,M,JP,20060101,20051220,A,F) H03M-13/29(R,I,M,EP,20060101,20051008,A) H03M-13/35(R,I,M,EP,20060101,20060722,A) H03M-13/41(R,I,M,JP,20060101,20051220,A,L) H03M-13/45(R,I,M,JP,20060101,20051220,A,L) H04L-1/00(R,I,M,EP,20060101,20051008,A) H04L-1/00(R,I,M,EP,20060101,20051008,C) H04L-1/20(R,I,M,EP,20060101,20051008,A) H04L-1/20(R,I,M,EP,20060101,20051008,C)
Current ECLA class: H03M-13/29T H03M-13/29T3 H03M-13/29T5 H03M-13/35 H04L-1/00B5E5 H04L-1/00B7K3 H04L-1/00B7R1 H04L-1/20

Original US Class (main): 714755
Original US Class (secondary): 714786
Original Abstract: A quality of service on transmission channels in a digital transmission system is assessed. A turbo coding is carried out in a turbo coder at the transmitter end for channel coding. A turbo decoding is carried out in a turbo decoder with soft-decision output signals at the receiver end. The quality of service is determined from the variances of the soft-decision output signals from the turbo decoder. If a MAP (maximum a posteriori) symbol estimator is used at the receiver end, the quality of service is determined from the variance $sigma^2_{LLR}$ of the log-likelihood ratio LLR of the soft-decision output signals from the turbo decoder. The variances $sigma^2_{LLR}$ are used to calculate the bit error rate as a measure of the quality of service. An RCPTC (Rate Compatible Punctured Turbo Code) is used as the turbo code for the method and in the device for assessing the quality of service.
Claim: We claim:

1. 1. A method for assessing a quality of service on transmission channels in a digital transmission system, the method which comprises:
   - performing a turbo coding in a turbo coder for a channel coding at a transmitter end;
   - performing a turbo decoding in a turbo decoder with soft-decision output signals at a receiver end; and
   - determining a quality of service from instantaneous values of variances of the soft-decision output signals from the turbo decoder.

WIPO

Publication No. WO 1999011013 A1 (Update 199916 E)
Publication Date: 19990304
VERFAHREN UND EINRICHTUNG ZUR ABSCHATZUNG DER DIENSTQUALITAT AUF UBERTRAGUNGSKANALEN IN EINEM DIGITALEN UBERTRAGUNGSSYSTEM
METHOD AND DEVICE FOR ASSESSING THE SERVICE QUALITY OF TRANSMISSION CHANNELS IN A DIGITAL TRANSMISSION SYSTEM
PROCEDE ET DISPOSITIF POUR L'EVALUATION DE LA QUALITE DE SERVICE SUR DES CANAUX DE TRANSMISSION DANS UN SYSTEME DE TRANSMISSION NUMERIQUE
Assignee: *(except US)* SIEMENS AKTIENGESELLSCHAFT, Wittelsbacherplatz 2, D-80333 Munchen, DE Residence: DE Nationality: DE (SIEI)
(only US) DOETSCH, Markus, Sendnicher Weg 62, D-56072 Koblenz, DE Residence: DE Nationality: DE
(only US) PLECHINGER, Jorg, Westermuhlstrasse 16, D-80469 Munchen, DE Residence: DE Nationality: DE
(only US) JUNG, Peter, Im Rabental 28, D-67697 Otterberg, DE Residence: DE Nationality: DE
(only US) BERENS, Friedbert, Keltenweg 67, D-67663 Kaiserslautern, DE Residence: DE Nationality: DE
Inventor: DOETSCH, Markus, Sendnicher Weg 62, D-56072 Koblenz, DE Residence: DE Nationality: DE
PLECHINGER, Jorg, Westermuhlstrasse 16, D-80469 Munchen, DE Residence: DE Nationality:

DE
JUNG, Peter, Im Rabental 28, D-67697 Otterberg, DE Residence: DE Nationality: DE
BERENS, Friedbert, Keltenweg 67, D-67663 Kaiserslautern, DE Residence: DE Nationality: DE
Agent: SIEMENS AKTIENGESELLSCHAFT, Postfach 22 16 34, D-80506 Munchen, DE
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Original Abstract: Bei einem Verfahren und einer Einrichtung zur Abschatzung der Dienstqualitat auf Ubertragungskanalen in einem digitalen Ubertragungssystem wird zur Kanalcodierung senderseitig in einem Turbo-Codierer eine Turbo-Codierung und empfangerseitig in einem Turbo-Decodierer eine Turbo-Decodierung mit Soft-Decision-Ausgangssignalen durchgefuhrt. Die Dienstqualitat wird aus den Varianzen der Soft-Decision-Ausgangssignale an dem Turbo-Decodierer bestimmt. Wenn empfangerseitig ein MAP-Symbolschatzer verwendet wird, wird die Dienstqualitat aus den Varianzen $sigma^2_{LLR}$ der Soft-Decision-Ausgangssignale des Turbo-Decodierers bestimmt, indem aus den Varianzen $sigma^2_{LLR}$ die Bitfehlerrate als Mass fur die Dienstqualitat berechnet wird.Bei dem Verfahren und in der Einrichtung wird als Turbo-Code ein RCPTC verwendet.

The invention relates to a method and a device for assessing the service quality of transmission channels in a digital transmission system, wherein turbo-coding for channel coding is carried out in a turbo-coder on the sender side and turbo decoding is performed using a turbo-decoder with soft decision output signals on the receiver side. Service quality is determined on the basis of variances in the soft decision output signals in the turbo-decoder. When a MAP symbol evaluator is used in the receiver side, the service quality is determined on the basis of the variances $sigma^2_{LLR}$ of the soft decision output signals of the turbo-decoder. The bit error rate is calculated on the basis of the variances $sigma^2_{LLR}$ to measure service quality. An RCPTC is used as turbo-code in the method and in the device.

L'invention concerne un procede et un dispositif pour evaluer la qualite de service sur des canaux de transmission dans un systeme de transmission numerique. Pour le codage des canaux, un turbo-codage s'effectue cote emetteur dans un turbo-codeur, et un turbo-decodage s'effectue cote recepteur dans un turbo-decodeur avec des signaux de sortie de decision ponderee. La qualite de service est determinee a partir des variances des signaux de sortie de decision ponderee au niveau du turbo-decodeur. Lorsqu'un evaluateur de symboles MAP est utilise cote recepteur, la qualite de service est determinee a partir des variances $sigma^2_{LLR}$ des signaux de sortie de decision ponderee du turbo-decodeur,le taux d'erreurs sur les bits etant calcule a partir de celles-ci et permettant de mesurer la qualite de service. Dans ce procede et ce dispositif, un RCPTC est utilise comme turbo-code.